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The role of group identification, Self- and Collective efficacy on secondary traumatic stress and general health in a sample of emergency medical service volunteers

Abstract

This paper reports the results of a web-based survey on the relationship between group identification, secondary traumatic stress, and psychological distress in a sample of Italian emergency medical service volunteers. The theoretical foundation of this research was based on the social cure approach that suggests that group identification can increase people's wellbeing by enhancing the sense of social support and mastery. Responses from 1,214 volunteers (50% men) were collected and structural equation modeling was performed to assess direct and indirect effect of group identification on both secondary traumatic stress and psychological distress. Results supported expectations, and indicated that group identification was associated with decreased secondary traumatic stress and psychological distress: this relation was both direct and mediated by self-efficacy and collective efficacy. Self-efficacy and collective efficacy completely mediated the relationship between group identification and secondary traumatic stress, while mediation was partial for the relationship between group identification and psychological distress. Moreover, our findings revealed that collective efficacy had a higher impact on psychological distress than on secondary traumatic stress. Self-efficacy, instead, had a significant negative effect on both secondary traumatic stress and psychological distress. Finally, secondary traumatic stress had a strong relationship with psychological distress. The practical implications for volunteers' wellbeing and volunteer association are discussed in view of the need to improve collective positive resources.

Keywords: Volunteers, group identification, secondary traumatic stress, psychological distress, self-efficacy, collective efficacy

Introduction

Volunteering in emergency medical services (EMS) represents a fundamental activity for the functioning of several national healthcare systems and the wellbeing of communities (e.g., Cash et al., 2021). EMS volunteer organizations (e.g., Red Cross) play a crucial role in supporting hospitals and healthcare organizations as well as in emergency and rescue interventions for ordinary (e.g., accidents) and exceptional (e.g., calamities or humanitarian crises) events. Most of the personnel of such organizations are made up of volunteers who decided to dedicate part of their time and energy to helping others *without payment* (e.g., Hustinx & Lammertyn, 2004). As in many countries, in Italy EMS is coordinated by a national provider answering the same emergency number (118, equivalent to 911 in the US). EMS is delivered by local hospitals and by volunteer associations serving local communities by providing professional first aid services and disaster assistance. EMS volunteers perform a wide range of healthcare activities such as first-aid interventions (e.g., administering oxygen therapy and removing choking obstructions), interventions in life-threatening emergencies (e.g., Cardiopulmonary Resuscitation /Basic Life Support), ambulance and pre-hospital services in standard and risk situations (e.g., Prehospital Trauma Life Support treatment, non-emergency, and emergency transports), as well as providing assistance to patients, sick people (e.g., support elderly patients and others affected), migrants and violence victims, to name just a few. These activities expose volunteers to highly stressful situations which, in turn, can lead to their experiencing psychological maladjustment in terms of emotional problems (e.g., depression), reduced quality of life, and post-traumatic stress disorder (PTSD, e.g., Abellanoza et al., 2018; Adriaenssens et al., 2012; Patterson et al., 2012).

Literature is affording increasing attention to the effect of secondary traumatic stress (STS) on psychological maladjustment, especially among first responders (Greinacher, Derezza-Greeven, et al., 2019; Greinacher, Nikendei, et al., 2019). Accordingly, STS and psychological distress are two major health problems affecting rescue personnel (Beck, 2011; Greinacher, Derezza-Greeven,

et al., 2019; Roden-Foreman et al., 2017). STS can be defined as the sudden effect of direct or indirect exposure to highly stressful events leading to negative feelings (Figley, 1995; 1999; Stamm, 2002). STS seems to be caused by direct or indirect repeated confrontation with traumatic situations occurring to others (Figley, 1995; Greinacher, Nikendei, et al., 2019). Symptoms are similar to those of PTSD and include intrusive thoughts and memories, avoidance of people and places linked to the event, and arousal (Greinacher, Nikendei, et al., 2019; Setti, 2012). Accordingly, the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM 5th edition, American Psychiatric Association, 2013) added a new criterion "A4" in order to include indirect exposure to traumatic events as the etiological origin of PTSD. However, several trauma scholars have expressed skepticism and disappointment about the inclusion of STS under the PTSD umbrella (e.g., Horesh, 2016; McNally, 2009) as this would risk obscuring the specificity of STS, especially the fact that it is also linked to professional contexts in which people are indirectly exposed to trauma by taking care of traumatized patients (Horesh, 2016; Jacobs et al., 2019). Accordingly, STS is supposed to be "the *natural,* consequent behaviors and emotions resulting from knowing about a traumatizing event experienced or suffered by a person" (Figley, 1995, p. 7, emphasis added), and is recognized as an occupational hazard associated with rescue emergency activities (Adams et al., 2006; Beck et al., 2017; Bock et al., 2020) which can lead to increased risk to develop serious psychological problems such as depression, anxiety and loneliness (Adams et al., 2006; Bock et al., 2020; Cicognani et al., 2009). Accordingly, in the last years, STS has been assessed in a range of helping professionals such social workers, nurses, physicians, midwives (Beck et al., 2015; Bride, 2007; Duffy et al., 2015; Roden-Foreman et al., 2017) as well as ambulance workers (Setti, 2012) showing consistently to make it more difficult for people to achieve a good psychological adjustment, leaving them exposed to emotional and mental health problems.

While the association between STS and mental health problem has been proven in helping professionals and rescue volunteers such as volunteer firefighters (e.g., Bryant & Harvey, 1995;

Regehr et al., 2000), EMS volunteers have seldom been investigated so the processes involved in decreasing or increasing the psychological wellbeing of EMS volunteers are still relatively unknown (see also Bock et al., 2020). Given their fundamental role in healthcare, the psychological wellbeing of EMS volunteers is of exceptional importance for communities and, hence, research is needed to investigate the protective factors which can maintain or reinforce the wellbeing of EMS volunteers. Accordingly, the present research attempted to focus on some psychosocial factors that can affect the psychological (mal)adjustment of EMS volunteers. Research on mental health in early responders and emergency rescuers has highlighted that self-efficacy, collective efficacy, and social support are among the most important protective psychological factors for mental health along with e.g., internal control, coping styles, and (low level of) empathy (e.g., Greinacher, Nikendei, et al., 2019; Hamid & Musa, 2017; Prati & Pietrantoni, 2010; Wagaman et al., 2015). However, while existing research has supplied important information about individual characteristics that promote individuals' resilience against STS and distress, the level of analysis is primarily intra-individual so that protective factors appear to be treated as separated and autonomous sources of resilience (Haslam et al., 2018; Jetten et al., 2014). This individualistic and differential approach does not emphasize the collective nature of both STS and distress that can emerge from working with *other* colleagues to helping *others.* In general terms, it is worth noting that taking care of others and engaging in emergency activities are "collective" behaviors which are done in a team and for the community wellbeing, thus entailing that rescuers act as members of teams and communities. As stressed by Haslam et al. (2018), "One fundamental reason why social identity often plays a major role in the psychology of trauma is that this is something that people often experience in groups" (p.116, emphasis in the original). Despite the importance of collective processes for healthcare workers' health, research has afforded limited attention to group and social dimensions that are implied in such a process. Recently, however, the so-called social cure approach (Haslam et al., 2018, 2021) has been proposed to take explicitly into account the non-pathological *collective* processes implied in health and wellbeing. As known, the social cure approach represents the

application of the principles of Social Identity Theory (Tajfel & Turner, 1979) and Self-Categorization theory (Turner et al., 1987) to the health and wellbeing processes. The starting point of the social cure approach is that groups to which people belong and feel they are tied are an important determinant of peoples' health (Jetten et al., 2014). Social identities, indeed, allow people to obtain positive self-worth, social support, general knowledge about themselves, and a sense of control and mastery (Haslam et al., 2021); in this way, social identities supply people with the resources to manage stress and problems and to improve health and wellbeing (Caricati et al., 2020; Greenaway et al., 2015). Central to this approach is the construct of group identification, that is to say, the extent to which people feel tied to their group, given that the more individuals perceive to be identified with the group, the more the health potential of the group is activated. Shared membership (i.e., ingroup identification) can indeed increase the perception that social support is available affecting the way in which people appraise both their abilities to cope with stressful events themselves (Haslam & Reicher, 2006; Junker et al., 2019). In a similar way, the more people feel identified with the group, the more they will be likely to feel to be not alone in coping with the burden of healthcare activities and to collectively reappraise negative events more positively (Haslam et al., 2018). In this sense, group membership could be viewed as a booster of coping resources, helping people to manage stressful events, especially for those people who feel strongly tied with their groups (i.e., strong identifiers). Several groups can serve as a way to promote people's wellbeing in everyday life and the workplace. Accordingly, team and professional identification have been associated with positive health outcomes such as increased job satisfaction and intention to stay as well as reduced burnout and stress in healthcare professionals (Caricati et al., 2014; Lu et al., 2007; Marletta et al., 2014; Panari et al., 2019). The social identity approach appears to be especially relevant in the case of volunteers as it has been shown that group identities are fundamental for sustaining volunteers' motivation and engagement (Gray & Stevenson, 2020). For example, volunteer associations operate under the guidance of principles and values such as equality, freedom, solidarity, gratuity and mutuality. Volunteers are not paid for their engagement

and can leave their role whenever they wish to (e.g., when they feel to be unable to manage the stress levels). This entails that reinforcements for volunteering are primarily symbolic (e.g., intrinsically motivating, Emrich & Pierdzioch, 2016; Lammers & Garcia, 2009; Setti et al., 2018) so that, in this sense, group identification should be an extraordinarily important source of motivation and guidance values for volunteers (Gray & Stevenson, 2020). Accordingly, some sparse research has suggested that strongly identified volunteers (not in EMS settings, however) are more likely to be satisfied with their activities and more likely to continue to do volunteering (e.g., Grube & Piliavin, 2000; Romaioli et al., 2016). Recently, Caricati et al. (2020) showed that, in a group of EMS volunteers, group identification increased compassion satisfaction and decreased burnout via self-efficacy. Thus, it seems that processes highlighted in EMS professionals could be in place also among EMS volunteers: social identification may help both EMS volunteers and professionals to reach better health outcomes.

Aims and Hypotheses

Using the social cure approach as a theoretical framework, the present research investigated the role of group identification on both secondary traumatic stress and psychological distress in a large sample of EMS volunteers. The aim was twofold: first, we aimed to improve knowledge about the linkage between psychosocial processes and health in an under-investigation population of EMS volunteers. Second, we aimed to investigate the role of some collective dimensions on psychological maladjustment of volunteers with a special interest in the role of group identification, self-efficacy, and collective efficacy in increasing or decreasing volunteers' secondary traumatic stress and psychological distress. To the best of our knowledge, this is one of the first research works that seek to investigate mechanisms through which group identification can help EMS volunteers to be resilient against stress impact. In general terms, and according to the social cure approach, we expected that group identification, supplying people with social resources to cope with stressful events, could reduce both STS and psychological distress (see Figure 1 for the expected model). Firstly, according to existing literature that indicates that secondary traumatization

has the potential to affect people's mental health, we expected STS to be positively associated with psychological distress (hypothesis 1). Concerning protective factors against STS and psychological distress, the social cure approach highlights the role of ingroup identification as an empowering resource that people can use to cope with burdens and psychological distress. This leads to the expectation that group identification will have a general negative association with both STS and psychological distress (hypothesis 2). The social cure approach also specifies that this negative association should be due to specific processes linked to social identity and, in this research, we focused on two factors, namely self-efficacy and collective efficacy. This choice was made for two reasons, in particular. First of all, literature confirmed that both self- and collective efficacy are important protective factors from secondary traumatization (e.g., Greinacher, Nikendei, et al., 2019; Hamid & Musa, 2017). Self-efficacy, indeed, has been shown to help professionals to better manage job demands, emotional overload and personal adjustment following adverse or traumatic experiences (e.g., Benight & Bandura, 2004). Similarly, collective efficacy, that is to say the perception that the ingroup is capable of engaging in and reaching goals, has been associated with lower exhaustion, stress and fatigue levels (e.g., Cicognani et al., 2009; Prati et al., 2011). Secondly, both factors have been associated with social identity (Caricati et al., 2020; Cohen et al., 2022; Kellezi et al., 2009). Indeed, because social identity supplies people with the basis for self-evaluation and self-worth as well as vicarious experience and persuasion (e.g., Haslam et al., 2006), it would results in an increase in perceived self-efficacy. Accordingly, research has shown that group identification boosts the feeling of self-efficacy in a variety of social groups (e.g., war survivor and new mothers, Haslam et al., 2006; Kellezi et al., 2009), as well as in EMS volunteers (Caricati et al., 2020). According to this effect of group identification on self-evaluation, we expected group identification to be positively associated with self-efficacy (hypothesis 3a) which, in turn, should be negatively linked to both STS and psychological distress (hypotheses 4a and 4b). Moreover, social identity is also able to increase perceived group efficacy as the more people feel connected with a group, the more they should perceive mutual social support and positively

evaluate that group. Thus, the social cure approach suggests that group identification should also increase the perception that the group is effective in managing problems and coping with stressors (Häusser et al., 2020; van Dick & Haslam, 2012). Accordingly, some research has confirmed that group identification increases health and wellbeing through the mediation chain of social support and collective efficacy (Avanzi et al., 2015; Junker et al., 2019). We then expected group identification to be positively associated with collective efficacy (hypothesis 3b) which, in turn, should be negatively related to both STS and psychological distress (hypothesis 5a and 5b). The last set of hypotheses concerns the mediation effect of both self and collective efficacy on STS and psychological distress. More precisely, according to the social cure approach which assumes that group identification would lead to better health outcomes through the mediation chain of several identity-linked constructs, we expected the negative association between group identification and both STS and psychological distress to be mediated by self-efficacy (hypotheses 6a and 6b respectively) and collective efficacy (hypotheses 7a and 7b respectively). In sum, we expected group identification to bolster both self and collective efficacy, which in turn would decrease the levels of both STS and psychological distress in EMS volunteers (see Table 1 for a summary of all the hypotheses and their theoretical and empirical justifications).

Table 1 about here

Methods

Procedure and participants

A web-based survey was used to collect the data. We used a non-probabilistic sampling procedure by contacting several Italian national volunteer associations asking to collaborate in this research by sending an e-mail to their volunteers. We are not able to know the number of potential respondents as some associations did not reply while others sent the e-mail without any further contact with us. Nevertheless, the two major volunteer associations that operate in providing public

healthcare assistance in Italy, ANPAS and the Italian Red Cross, comprise about 100,000 and 150,000 volunteers, respectively, so it is possible to roughly estimate the number of rescuer volunteers in Italy to between 300,000 and 400,000. The e-mail contained an invitation to take part in the survey along with a link redirecting to the online survey. On the first page, participants read the informed consent in which it was explained that the research was about their experience as volunteers, that participation was voluntary, completely anonymous, and without payment, and that it would be possible to leave the survey at any time. It was specified that taking the survey is tantamount to expressing consent to participate in the research. The survey was open from 15 December 2020 to 15 March 2021. All procedures were in accordance with the ethical standards of APA and the 1964 Helsinki declaration and its successive amendments.

We collected 1,818 accesses to the survey. Of these, 497 only clicked the link but did not consent to participate, and 102 left the questionnaire after having consented to participate. Five further participants who reported to be aged less than 18 were excluded. The analyzed sample was made up of 1,214 volunteers from 4 different volunteer associations. Mean age was 48.23 (*SD* = 14.28, range = 18-81; 357 participants did not report their age) and 430 (50.2%) were men (357 participants did not report their gender). On average, participants had served as volunteers for 9.75 years (*SD* = 10.44). Almost all the participants (96.9%) were volunteers, 9 were doing voluntary civilian service and 27 (2.2%) had an employment contract with the association[1].

Measures

Group identification was measured with seven items (e.g., “I am proud to be a volunteer” and “I identify with the volunteer group”) taken from Caricati et al. (2020) and already used with Italian volunteers sample. Responses were on a 7-point Likert-type scale (1 = completely disagree, 7 = completely agree) and reliability was good (Cronbach’s a = .90).

Self-efficacy was measured with 5 items taken from Barbaranelli and Capanna (2001) and already validated in the Italian context, asking participants to indicate the extent to which they felt able to manage difficulties (e.g., “Answer promptly to requests for help from the patient” and

"Being an effective emotional support for the patient") on a 5-point Likert-type scale (1 = not capable at all; 5 = very capable). Reliability was good (a = .80).

Collective efficacy was measured with 5 items taken from Riggs and Knight (1994) asking participants to indicate the extent to which they believe that their volunteer colleagues would be able to cope efficaciously with healthcare requests (e.g., "The volunteers of this association are always updated and trained" and "The volunteers of this association can respond effectively to intervention requests"). Answers were on a 7-point Likert-type scale (1 = completely disagree, 7 = completely agree). We translated original items by realizing three preliminary independent translations which were then compared in a meeting to reach a final version. Confirmatory factor analysis revealed that one-factor solution had good fit, $\chi^2(5) = 24.504$, $p < .001$, $\chi^2/df = 4.90$, CFI = .986, RMSEA = .061, 90%CI[.041; .083], $p = .175$, and reliability was good (a = .82).

Secondary traumatic stress was measured with the "Secondary Traumatic Stress Scale" (STSS, Bride et al., 2004) which is one of the most used scales to detect the indirect impact of traumatic events. We used the Italian version that has been adapted and validated by Setti and Argentero (2012) with a sample of ambulance operators (most of them were volunteers). The scale is composed of 15 items measuring three different, but related, dimensions: intrusion, avoidance, and arousal. It is possible to use either a single dimension score or a total score (Setti, 2012). In this work, we administered only 10 items measuring intrusion (e.g., "I thought about my work with patients when I didn't intend to") and avoidance (e.g., "I wanted to avoid working with some patients"). We did not administer arousal items as their formulation is general and not specifically referred to work with patients (e.g., "I felt jumpy") which is one of the core aspects of STS. This would have increased the risk to inflate the association of STS with psychological distress and then we decided to not administer these items. Items were on a 5-point Likert-type scale (1 = never, 5 = very often). Given that avoidance (a = .74) and intrusion (a = .76) were positively and strongly correlated with one another ($r = .53$, $p < .001$), we used the total score of the scale, which was highly reliable (a = .81).

Psychological distress was measured with the Italian version of the general health questionnaire (GHQ-12, Goldberg & Williams, 1988) which was translated and adapted to the Italian context by Politi et al. (1994), and is composed of 12 items designed to assess the presence of psychological symptoms. GHQ-12 has become one of the most popular scales for detecting psychological distress (Hystad & Johnsen, 2020) and has been translated into several languages. Although GHQ-12 was designed to be unidimensional, Politi et al. (1994) detected two factors that were called "General dysphoria" grouping items referring to depression and anxiety feeling (e.g., "Felt under strain"), and "Social dysfunction" grouping items referring to daily activities and coping with everyday problems (e.g., "Could not make decisions"). In the present case, we detected a positive but slight correlation between the two dimensions ($r = .23$, $p < .001$) and then we kept separate the two dimensions considering both general dysphoria (a = .88) and social dysfunction (a = .66) as separate indicators of the general psychological adjustment (a = .81).

Analysis plan

Hypotheses were tested with structural equation modeling considering constructs as latent traits measured by collected (raw) items. We first tested the measurement model alone to determine the extent to which items measured the intended latent traits. We also performed Harman's single factor test, comparing the results with the indexes of the measurement model to assess the common method bias. Afterwards, we tested a model in which regression paths were added to the measurement model. Figure 1 depicts the fully tested model (without the measurement model). As one can see, the regression model was computed on latent traits which were specified by the measurement model in which raw items were considered as observed indicators of each latent dimension. Note that psychological distress (as measured by GHQ) was a second-order latent dimension measured by the two first-order latent traits of dysphoria and social dysfunction. Mediation was assessed by observing significance of indirect effects which "passed" through mediator variables. Models were tested with maximum likelihood estimation with robust standard

error estimation and using full information maximum likelihood (FIML)[2] with lavaan package (Rosseel, 2012) in R (R Core Team, 2021).

Results

Model testing: measurement

Results of the measurement model revealed a good fit, $\chi^2(690) = 1856.976$, $p < .001$, $\chi^2/df = 2.69$, CFI = .910, RMSEA = .037, 90%CI[.035; .039], $p = .999$. Moreover, all items were significantly measured by the intended latent traits (all *p*s < .001, see Table S1 in the supplementary material). Single-factor solution revealed a poor fit, $\chi^2(702) = 8552.770$, $p < .001$, $\chi^2/df = 12.18$, CFI = .396, RMSEA = .096, 90%CI[.094; .098], $p < .001$, which was significantly lower than the fit of the measurement model, $\Delta\chi^2(12) = 3164.60$, $p < .001$. These results appear to indicate that common method bias is not a real concern and that the items adequately measured the intended latent trait.

Table 2 reports zero-order correlations between latent traits and the reliability of each measurement. As indicated, in line with expectations, group identification was positively correlated with both self-efficacy and collective efficacy that, in turn, were negatively correlated with both psychological distress and secondary traumatic stress. Interestingly, and in line with hypothesis 2, group identification had a significant, and negative, zero-order correlation with psychological distress and STS.

Table 2 about here

Model testing: regression

The fit of the full model was good, $\chi^2(691) = 1858.100$, $p < .001$, $\chi^2/df = 2.69$, CFI = .915, RMSEA = .037, 90%CI[.035; .039], $p = .999$. Table 3 reports results for the full model and Figure 1 depicts the regression paths. As can be seen, results were generally supportive of the expectations. Firstly, according to H1, STS was positively related to psychological distress. Moreover, the more

participants were identified with the volunteer group, the more they perceived collective efficacy (H3b) and to be self-efficacious (H3a). Self-efficacy, in turn, had a direct and negative effect on both STS and psychological distress as expected from hypotheses 4a and 4b. In partial disagreement with hypothesis 5a, collective efficacy showed a direct effect on STS but its associated probability (p = .058) was slightly greater than the usual cutoff for statistical significance. However, in agreement with hypothesis 5b, collective efficacy had a direct and negative significant effect on psychological distress. Results also indicated that the zero-order significant effect of group identification on STS turned to be not significant when mediators were taken into account, suggesting that a complete mediation occurred. However, only the mediation of self-efficacy turned out to be significant (as expected from hypothesis 6a) while, contrary to hypothesis 7a, the mediation of collective efficacy was not significant although its associated probability was slightly greater (p = .060) than the usual cutoff. The effect of group identification on psychological distress was also mediated by self-efficacy and collective efficacy supporting hypotheses 6b and 7b, but this mediation was only partial given that group identification maintained a significant and negative direct effect on psychological distress. For explorative purposes, we also estimated other potential mediation paths. As indicated in Table 3, the effect of group identification on psychological distress appeared to be not significantly mediated by STS. However, a double significant mediation appeared on the relationship between group identification and psychological distress via self-efficacy and STS. The double mediation via collective efficacy and STS was not significant, instead.

Table 3 about here

Exploratory analysis

In an explorative attempt, we tested an alternative model in which STS predicted self-efficacy, collective efficacy, and group identification (simply put, we switched the places of STS and group identification with respect to those reported in Figure 1). Results revealed that this model

had an adequate fit, $\chi^2(691) = 1868.784$, $p < .001$, $\chi^2/df = 2.70$, CFI = .914, RMSEA = .037, 90%CI[.036; .039], $p = .999$. However, Vuong's likelihood ratio test for non-nested models (Vuong, 1989), revealed that the first model had a better fit than the alternative model (LR = 12.251, $p < .001$).

Discussion

This work aimed to investigate the role of group identification in decreasing levels of secondary traumatic stress and distress symptoms in a group of Italian EMS volunteers. To the best of our knowledge, this sort of volunteers is not yet a central topic for research on distress and wellbeing, although their important role in supporting and functioning of healthcare systems. Moreover, we should note that psychological maladjustment and trauma are still regarded mainly as individual problems meaning that the collective processes implied in these problems are still under-investigated in the literature.

As expected, results confirmed that secondary traumatic stress is strongly linked to psychological distress so that the more volunteers reported signs of vicarious trauma, the more they reported signs of psychological maladjustment. This is in line with research indicating that anxiety and depression are associated with the development of secondary traumatic stress (Adams et al., 2006; Bock et al., 2020; Cicognani et al., 2009; McCann & Pearlman, 1990).

Concerning factors that can improve volunteers' resilience against STS and distress, our theoretical premises were rooted in the social identity approach to health (e.g., Haslam et al., 2018) that focuses on the non-pathological and collective processes involved in healthy and unhealthy outcomes. Accordingly, a wide body of research suggests that one factor that has important consequences for psychological health and well-being in organizations is people's social group attachment or identification (Jetten et al., 2012). According to the social cure approach, social identification impacts people's health because it supplies people with sources to evaluate and appraise both themselves (e.g., their abilities as volunteers) and situations (e.g., the meaning of events). In this research, we expected group identification to decrease both secondary traumatic

stress and distress by enhancing volunteers' feeling to be efficacious both individually and as a group. Results largely confirmed these expectations showing that group identification was associated with reduced secondary traumatic stress and psychological distress, both directly and indirectly in EMS volunteers. Indeed, group identification was negatively correlated with both secondary traumatic stress and psychological distress, and analysis revealed that this association was mediated by increased self-efficacy and, in part, by increased collective efficacy. Accordingly, the zero-order effect of group identification on STS turned to be non-significant when collective efficacy and self-efficacy especially were entered in the model. This result supports our expectations and is congruent with the social identity approach that suggests that social identification is a determinant of health and wellbeing because it increases people's perception to be able to manage stressful situations both individually and as group members (Frisch et al., 2014; van Dick & Haslam, 2012). This also confirms and extends the previous finding by Caricati et al. (2020) that showed that group identification is associated with increased perceived self-efficacy in EMS volunteers. Similar mediation effects were observed for perceived distress on which, however, professional identification maintained a significant direct effect: stronger identified volunteers reported lower levels of distress, regardless of their perception of being self- and collectively efficacious. In addition, mediation analysis highlighted that group identification had also an indirect effect on psychological distress through increases in both self-efficacy and collective efficacy that, in turn, decreased psychological distress. Again, this finding is consistent with social identity approach expectations on the role of social identification in allowing people to increase their feeling of mastery and coping skills (e.g., Guan & So, 2016; Haslam et al., 2006) which results in a decrease in distress (Haslam et al., 2005; Steffens et al., 2017). These results then enlarge our knowledge concerning the role of collective processes in the wellbeing of unpaid EMS helpers showing that psychological attachment to the group helps volunteers to cope efficaciously with the stress and strain of the activities they choose to do voluntarily. This is important and novel evidence that suggests that, along with other individual and material dimensions, also the symbolic collective

dimension (e.g., group identification) is important to improve the mental health and abilities of people who choose to help others voluntarily. It is worth noting that some results were unexpected and suggested that collective efficacy seems to matter more for psychological distress than for secondary traumatic stress, while self-efficacy appears to be linked to both health outcomes. Indeed, collective efficacy showed no significant direct and mediational effects on vicarious trauma, while it had a clear mediation effect on psychological distress, suggesting thus that its role in reducing the impact of the sudden indirect experience of highly stressful events is limited. This unexpected path deserves further attention as it might be indicative of some peculiar effects of individual and collective efficacy on secondary traumatic stress. This might be because a) secondary traumatic stress is an individual-anchored health problem as it pertains to intrusive thoughts and arousal and b) observing trauma that occurred to others could be more relevant to the extent that one feels more connected with others (i.e., highly identified people). Indeed, shared social identity also increases one's feeling of empathy for ingroup members (Batson & Ahmad, 2009; Cikara et al., 2014; Haslam et al., 2018) and, as Figley (1999) observed, one of the riskiest factors for experiencing STS is empathy: the more people feel tied with others (e.g., patients, co-workers, helped people) the more they could be impacted by traumas occurring to others. This might make it more difficult for volunteers to manage secondary traumatic stress and this in turn might reduce the protective effect of both social identification and collective efficacy with respect to secondary trauma. We, however, acknowledge that these argumentations are speculative and tentative as we did not measure empathy. Nevertheless, we would like to highlight that future research could investigate the relationship between social identification, empathy, and secondary traumatic stress.

In the case of psychological distress, however, our findings suggest that group identification is associated with better psychological adjustment both directly than via the mediation of both self-efficacy and collective efficacy. Hence, social identification (as a booster for increasing social resources) appeared to be related with volunteers' psychological distress both in itself (directly and via self-efficacy and collective efficacy) and by decreasing secondary traumatic stress.

Overall, the present results contribute to supporting and enlarging the still limited empirical research that indicates that also collective processes are involved in the problems (e.g., trauma and psychological maladjustment) that have been and are largely treated as individual problems. Indeed, the present results are consistent with the idea that social identification acts both on a personal level, by predicting personal efficacy in managing complex emotional situations, and on a collective level, by enhancing the participants' sense of group-based confidence in achieving goals. Our results are also consistent with evidence that individuals who identify strongly with their group are more likely to be involved in its activities, and tend to be more motivated to engage in their work (Jackson et al., 2011; Van Knippenberg & Van Schie, 2000) and manage stressful events (e.g., Haslam et al., 2005). In sum, our results appear to support the expectation of a social cure approach and contribute to theoretical and practical advancement by a) increasing an understanding of the mechanism allowing group identification to contribute to reduce people's distress, and b) increasing our knowledge about healthy and unhealthy processes in a still under-investigated population, such as that of EMS volunteers.

Practical implications

From an applicative point of view, our results suggest that the enhancement of group identification and feeling of group ties could result in an increased resilience of volunteers in facing the demands of their activities. Social identity and social identification are indeed social and psychosocial resources that can be used and reinforced to increase volunteers' feeling of being efficacious and capable at both the individual and collective levels. The strengthening of social identification seems to be able to increase volunteers' confidence in managing the various challenges of their activities. Moreover, secondary traumatic stress seems to require particular attention as it is pervasive and, in some cases, can be highly detrimental to people's health. It is worth noting that, while traumatic accidents that occurred to people are usually taken into account by volunteer associations and healthcare organizations, experiences of secondary or vicarious traumatic stress are usually not recognized as "real" events that can lead to intense discomfort (for

example, it is only in the last edition of the DSM that indirect exposure to traumatic events has been considered as possible source of PTSD, APA, 2013; McNally, 2009). The lack of recognition of the burden of vicarious trauma might implicitly send the message to volunteers that they are expected to be not impacted by vicarious trauma, thus making secondary traumatic stress a counter-normative behavior within volunteer associations. This message de-legitimizes the individual's suffering due to secondary traumatic stress thus making less likely the fact that volunteers seek and find social support from co-workers and colleagues. This could make social and group support less effective in helping members to manage stress stemming from observing traumatic events. Moreover, the support is often characterized by concrete actions of the division of labor that have an impact on the pragmatic organization of collective activity, while the cognitive and emotional aspects linked to these activities are overshadowed. To manage this danger, our suggestions pertain mainly to two aspects. First, volunteer associations should try to become (more) aware that volunteers' suffering could arise also from indirect exposure to traumatic events and that this is a *normal* and *legitimate* health outcome. Second, hopefully once this awareness is achieved, secondary traumatic stress should be dealt with as a group problem rather than as an individual problem. Indeed, using the same theoretical premises of social cure approach, resources that come from shared identity should also be used to manage the difficulties that people could experience as group members. In this sense, group interventions, such as those inspired by the Social Identity Model of Identity Change and the Group 4 Health (Haslam et al., 2021, 2018), which help people to develop and increase the sense of connectedness, to restore a sense of self and to develop new and stronger social ties, could be useful to manage, inside the groups, volunteers' problems and to increase volunteers' resilience against traumatic event and distress.

Limitations

The present research has several limitations that should be acknowledged. First of all, the correlational nature of the research prevents us to infer a causal link between variables. We must limit our understanding to the observation of correlations among constructs. This means that the

associations between variables may be reversed so that, for example, secondary traumatic stress will reduce self-efficacy and collective efficacy rather than the contrary. Of course, it is quite plausible and even likely that people with symptoms of secondary traumatic stress or psychological distress can lose confidence in their abilities and then decrease their perceived self-efficacy; we explored this possibility, and our results indicated that, although plausible, this alternative model had a poorer fit than the social cure model. While our research design does not permit either to confirm or exclude the possibility that STS would affect other variables, theoretical reasons as well as previous experimental and longitudinal analysis support the idea that self-efficacy (and collective efficacy and group identification as well) would increase the resilience of people against stressors. This also has a practical valence as we can know how to program health-promoting interventions and the aspect these interventions should reinforce (e.g., group identification and efficacy). A further limitation is linked to the fact that we did not assess whether participants were indirectly exposed to traumatic events, so we did not know if STS was anchored to a "real" experience. However, as several trauma scholars have highlighted (Horesh, 2016; Lev-Wiesel & Amir, 2001), real and explicit exposure to information or narratives of others' traumatic events is not necessarily needed because people would experience STS which, instead, seems to be linked to individuals' appraisal of, and their emotional reaction toward, events (Cieslak et al., 2013; Horesh, 2016; Prati et al., 2011; Trautmann et al., 2022). Moreover, although some works might expose people to higher or lower STS, it is impossible to list these works a priori. For example, a volunteer who works on an ambulance could be exposed to the suffering of a not seriously injured patient (e.g., hearing the patient scream in pain or fear) more than a volunteer who is assisting a severely traumatized but unconscious patient (e.g., on a respirator/having a breathing tube). Note also that if we assume that some events make secondary traumatic stress more certain, we would be inconsistent with our aim to investigate the psychosocial processes (and not the "real" conditions) that are implied in psychological distress among volunteers. Seeing that the meaning of a traumatic event depends on the individual's appraisal of that event, it is difficult to predict in advance for whom and when

secondary traumatic stress will be higher or lower. This in turn makes the problem of the intensity of the "objective exposure" to stressful events less relevant from a practical and theoretical point of view. Furthermore, we did not aim to assess the diagnostic clinical level of STS, rather we were interested in observing associations between variables. In this sense, we believe that the presence of STS symptoms, regardless their origin, would be informative in this case. Another limitation is linked to the use of a self-report questionnaire that could have inflated the results so that estimates could suffer from a certain degree of inaccuracy (Podsakoff et al., 2003).

While we are aware of these limitations, we should however underline that the strong theoretical anchorage, the relatively large sample size, and the use of statistical methodologies based on latent scores, help us to be relatively confident that present results could be highly informative and useful to better understand the processes that have been investigated.

Concluding remarks

To decide to become and remain volunteers is an act of solidarity and community engagement. As rescuers, EMS volunteers contribute decisively to the functioning of many of the healthcare services provided to the community, making it easier for people to maintain, preserve and achieve health and wellbeing. This is not without its costs: taking care of others means exposing oneself to stress and emotional burden. Shared social identity can help volunteers to withstand the weight of such a burden.

Endnotes

1 Volunteer associations can hire personnel (usually in limited numbers) to help to assure continuity of services. We did not exclude these people because it is quite likely that they would work for associations as volunteers also after their normal working hours. Nevertheless, results excluding these participants were virtually unchanged.

2 We also ran a model without FIML; results were largely the same and are reported in Tables S2 and S3 in the supplementary material.

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Table 1. List of hypotheses and their justification

	Hypotheses	Theoretical/empirical justification
Hypothesis 1	STS has a positive effect on psychological distress	Because the existing literature indicates that secondary traumatization may negatively affect people's mental health
Hypothesis 2	Group identification is negatively associated with both STS and psychological distress	Because, according to the Social Cure approach, group identification supplies people with resources to cope with burdens, psychological distress, and maladjustment.
Hypothesis 3a	Group identification has a positive effect on self-efficacy	Because group identification supplies people with the basis for self-evaluation and self-worth as well as a vicarious experience and persuasion, and thus contributes to increased perceived self-efficacy.
Hypothesis 3b	Group identification has a positive effect on collective efficacy	Because the more people feel connected with a group, the more they invest in that group, and then the more they should perceive a) mutual social support and b) the group as effective in managing problems and coping with stressors
Hypothesis 4a	Self-efficacy has a negative effect on STS	Because the literature shows that self-efficacy helps professionals to better

Hypothesis 4b	Self-efficacy has a negative effect on psychological distress	manage their job demands and personal adjustment following adverse or traumatic experiences.
Hypothesis 5a	Collective efficacy has a negative effect on STS	Because the literature shows that the more people perceive group efficacy, the more they can manage their job demands and personal adjustment.
Hypothesis 5b	Collective efficacy has a negative effect on psychological distress	
Hypothesis 6a/6b	Group identification has an indirect effect on STS and psychological distress via self-efficacy	Because group identification is expected to lead to better health outcomes by increasing some social identity-related dimensions such as self-efficacy and collective efficacy, which should then mediate the relationship between group identification and health outcomes.
Hypothesis 7a/7b	Group identification has an indirect effect on STS and psychological distress via collective efficacy	

Table 2. Zero-order correlations among latent traits (measurement model).

	1	2	3	4	5	6
1. Group identification	*.90*					
2. Self-efficacy	.27**	*.80*				
3. Collective efficacy	.48**	.16**	*.82*			
4. PD-dysphoria	-.26**	-.25**	-.27**	*.88*		
5. PD-social dysfunction	-.17**	-.16**	-.18**	.30**	*.66*	
6. STS	-.13**	-.24**	-.14**	.32**	.21**	*.82*

** $p < .001$; N = 1,214. Cronbach's alpha on the diagonal.

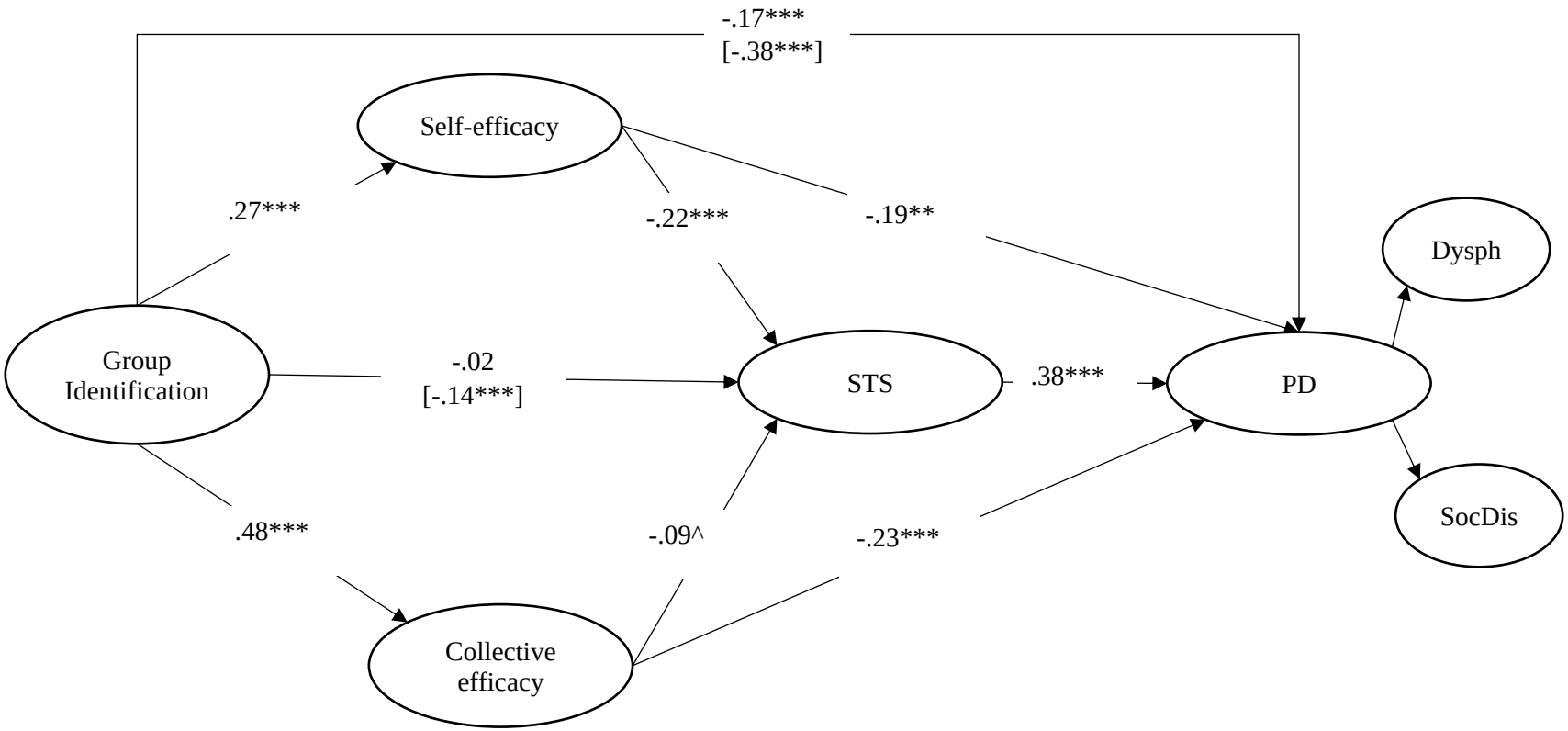
PD = psychological distress, STS = secondary traumatic stress

Table 3. Estimates from the structural equation modeling (regression model)

	b	*se*	95%CI	*p*	*β*	HP
STS						
Group identification	-0.019	0.042	[-0.102, 0.063]	.643	-.024	
Self-efficacy	-0.217	0.050	[-0.315, -0.118]	< .001	-.222	H4a
Collective efficacy	-0.045	0.023	[-0.090, 0.001]	.056	-.093	H5a
Self-efficacy						
Group identification	0.224	0.037	[0.152, 0.297]	< .001	.271	H3a
Collective efficacy						
Group identification	0.812	0.074	[0.666, 0.957]	< .001	.483	H3b
Psychological distress						
Group identification	-0.147	0.052	[-0.249, -0.046]	.004	-.169	
STS	0.405	0.072	[0.265, 0.546]	< .001	.376	H1
Self-efficacy	-0.203	0.065	[-0.331, -0.075]	.002	-.193	H4b
Collective efficacy	-0.119	0.032	[-0.181, -0.056]	< .001	-.229	H5b
Indirect effects						
Id -> Self-eff -> STS	-0.049	0.014	[-0.075, -0.022]	< .001	-.060	H6a
Id -> Coll eff -> STS	-0.036	0.019	[-0.074, 0.001]	.058	-.045	H6b
Id -> STS -> PD	-0.008	0.017	[-0.042, 0.026]	.648	-.009	
Id -> Self-eff -> PD	-0.046	0.016	[-0.077, -0.014]	.005	-.052	H7a
Id -> Coll eff -> PD	-0.096	0.027	[-0.149, -0.043]	< .001	-.111	H7b
Id -> Self-eff -> STS -> PD	-0.020	0.006	[-0.032, -0.007]	.002	-.023	
Id -> Coll eff -> STS -> PD	-0.015	0.008	[-0.031, 0.001]	.073	-.017	

N = 1,214; Id = group identification, Self-eff = self-efficacy, Coll eff = Collective efficacy, STS = Secondary traumatic stress, PD = psychological distress

Figure 1. Regression paths estimated by means of structural equation modelling



Standardized coefficients are reported. ^ $p = .058$, ** $p < .01$; *** $p < .001$. N = 1,214

Measurement model omitted.

PS = Psychological distress, Dysph = dysphoria, SocDis = social disfunction, STS = secondary traumatic stress